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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,291	02/06/2001	Russell J. Apfel	2069.008800/TT3778	8686

23720 7590 02/16/2005

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EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,291	APFEL, RUSSELL J.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☒ Claim(s) *16 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: refs. 420, 430, and 440 (see pg. 9, line 23-page 11, line 14 and Fig. 4). Fig. 4 uses ref. 410 for multiple components, including the components that should be labeled 420, 430, and 440. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: on page 3, lines 8-12 "four DSL systems" does not match the "three popular versions" since the specification does not disclose the fourth DSL version; on page 7, line 5 and page 7, line 6, "an apparatus" should be "a system"; on page 10, line 12 "is may" should be "may"; and on page 14, line 11 "is send" should be "is sent".

Appropriate correction is required.

Claim Objections

3. Claim 16 is objected to because of the following informalities: in line 1 "the apparatus of claim 1" should be "the apparatus of claim 12" since claim 1 is a method claim. Appropriate correction is required.

4. Claim 24 is objected to because of the following informalities: in line 1 "a method of" should be "an apparatus for". Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The terms "approximately" and "about" in claims 8-11 are relative terms which render the claims indefinite. The terms "approximately" and "about" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purposes or prior art rejections, Examiner will disregard these terms.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 2, 6, 7, and 12-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Shenoi et al. (USPN 6,507,606).

10. Regarding claims 1, 12, and 24, Shenoi discloses a method of and apparatus for improving at least one gain bandwidth path, the method comprising the steps of and the apparatus comprising means for: monitoring at least one signal being transmitted (col. 8, lines 3-24); and performing a gain/bandwidth control process upon said monitoring of said signal (col. 8, lines 3-24).

11. Regarding claim 2, Shenoi discloses that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal (col. 2, lines 13-25 and col. 8, lines 3-24).

12. Regarding claim 6, Shenoi discloses that performing a gain/bandwidth control process further comprises: determining an approximate length of at least one signal path carrying said signal (col. 8, lines 3-24); determining a bandwidth requirement of said signal path (col. 8, lines 3-24); determining a gain factor to be applied upon said signal path (col. 8, lines 3-24); separating said signal path in response to at least one of said approximate length of said signal path, said bandwidth requirement of said signal path, and said gain factor to be applied upon said signal path (col. 8, lines 3-24); and applying an appropriate gain within said bandwidth upon said separated signal path (col. 8, lines 3-24).

13. Regarding claim 7, Shenoi discloses summing said signal path in response to applying said gain upon said signal path to at least one other signal path (Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

14. Regarding claim 13, Shenoi discloses that said first circuit portion further comprises at least one differential signal driver is capable of driving at least one of a voice signal, a data signal, a DC signal, and a ringing signal onto said subscriber line (col. 2, lines 13-25) where "one of" is a broad phrase.

15. Regarding claim 14, Shenoi discloses that said subscriber line is a medium capable of transmitting signals (col. 2, lines 13-25 and col. 8, lines 3-24).

16. Regarding claim 15, Shenoi discloses that said subscriber line is comprised of a subscriber loop (col. 2, lines 13-25 and col. 8, lines 3-24).

17. Regarding claim 16, Shenoi discloses that said second circuit portion is a gain/bandwidth controller (col. 8, lines 3-24).

18. Regarding claim 17, Shenoi discloses that said gain/bandwidth controller further comprises: a signal path separator capable of separating a signal path based upon at least one of said bandwidth requirement, signal accuracy requirement, and a signal path characteristic (col. 8, lines 3-24); a plurality of gain/bandwidth circuits coupled with said signal path separator, said gain/bandwidth circuit being capable of applying an appropriate gain based upon said separation of said signal paths (col. 8, lines 3-24); and a summer coupled with said plurality of gain/bandwidth circuits, said summer being capable of summing a plurality of signals from said plurality of gain/bandwidth circuits and producing an output signal (Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

19. Regarding claim 18, Shenoi discloses a system for supporting voice band and data band communications, comprising: a sum block capable of receiving at least one of a voice signal, a DC signal, a ringing signal, and a data signal (col. 2, lines 13-25) where "at least one" only

requires one of the signals; at least one differential signal driver coupled to said sum block, wherein said differential signal drivers are capable of driving at least one of said voice signal, a DC signal, a ringing signal, and said data signal onto a subscriber line (col. 2, lines 13-25); and a gain/bandwidth controller coupled with said sum block and said differential signal driver, wherein said gain/bandwidth controller is capable of separating at least one signal path and applying an appropriate gain upon a signal on said subscriber line (col. 8, lines 3-24).

20. Regarding claim 19, Shenoi discloses that said sum block is capable of receiving at least one of a: DC ring signal; a metering signal; a voice signal; and a data signal (col. 2, lines 13-25).

21. Regarding claim 20; Shenoi discloses that said sum block is capable of summing two or more of said DC ring signal, said metering signal, said voice signal, and said data signal (col. 2, lines 13-25).

22. Regarding claim 21, Shenoi discloses that said subscriber line is a medium capable of transmitting signals (col. 2, lines 13-25).

23. Regarding claim 22, Shenoi discloses that said subscriber line is comprised of a subscriber loop (col. 2, lines 13-25 and col. 8, lines 3-24).

24. Regarding claim 23, Shenoi discloses that said gain/bandwidth controller further comprises: a signal path separator capable of separating a signal path based upon at least one of said bandwidth requirement, signal accuracy requirement, and a signal path characteristic (col. 8, lines 3-24); a plurality of gain/bandwidth circuits coupled with said signal path separator, said gain/bandwidth circuit being capable of applying an appropriate gain based upon said separation of said signal paths (col. 8, lines 3-24); and a summer coupled with said plurality of gain/bandwidth circuits, said summer being capable of summing a plurality of signals from said

plurality of gain/bandwidth circuits and producing an output signal (Fig. 5 and col. 7, line 64-col. 8, line 24) where the 2w-to-4w conversions implies a summation.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claims 3-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shenoi et al. (USPN 6,507,606).

27. Regarding claim 3, Shenoi does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a voice signal. However, Shenoi does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to frequency band and cable length (col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (col. 2, lines 35-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a voice signal in order to compensate for loss due to the cable in the voice band.

28. Regarding claim 4, Shenoi does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a DC signal. However, Shenoi does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to

frequency band and cable length (col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (col. 2, lines 35-50). Examiner takes official notice that the voice band comprises a DC signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a DC signal in order to compensate for loss due to the cable in the voice band.

29. Regarding claim 5, Shenoi does not expressly disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a ringing signal. However, Shenoi does disclose that monitoring at least one signal being transmitted further comprises determining whether said signal is a data signal in order to amplify the signal according to frequency band and cable length (col. 2, lines 13-25 and col. 8, lines 3-24). Shenoi also discloses that the voice band is susceptible to attenuation due to cable length and cable characteristics (col. 2, lines 35-50). Examiner takes official notice that the voice band comprises a ringing signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine whether said signal is a ringing signal in order to compensate for loss due to the cable in the voice band.

30. Regarding claim 8-11, incorporating arguments from claims 3-5, Shenoi does not expressly disclose that applying an appropriate gain within said bandwidth upon said separated signal path further comprises one of: applying a gain of 10 in a bandwidth of 500 KiloHertz to 5 MegaHertz in response to a determination that said signal path is a data signal path; applying a gain of 3 in a bandwidth of 200 Hertz to 20 KiloHertz in response to a determination that said signal path is a voice signal path; applying a gain of 140 in a bandwidth of 100 Hertz to 200

Hertz in response to a determination that said signal path is a DC signal path; or applying a gain of 140 in a bandwidth of 100 Hertz to 200 Hertz in response to a determination that said signal path is a ringing signal path. However, Shenoi does disclose that the frequency range used in DSL is vendor specific (col. 7, lines 1-24) and that the gain will depend on the distance traveled and frequency characteristics of the cable (col. 8, lines 3-24). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Shenoi discloses applying a gain in a particular bandwidth, it would have been obvious to one of ordinary skill in the art to apply any size of gain to any frequency bandwidth absent a showing of criticality by Applicant.

Conclusion

31. If a copy of a provisional application listed on the bottom portion of the accompanying Notice of References Cited (PTO-892) form is not included with this Office action and the PTO-892 has been annotated to indicate that the copy was not readily available, it is because the copy could not be readily obtained when the Office action was mailed. Should applicant desire a copy of such a provisional application, applicant should promptly request the copy from the Office of Public Records (OPR) in accordance with 37 CFR 1.14(a)(1)(iv), paying the required fee under

37 CFR 1.19(b)(1). If a copy is ordered from OPR, the shortened statutory period for reply to this Office action will not be reset under MPEP § 710.06 unless applicant can demonstrate a substantial delay by the Office in fulfilling the order for the copy of the provisional application. Where the applicant has been notified on the PTO-892 that a copy of the provisional application is not readily available, the provision of MPEP § 707.05(a) that a copy of the cited reference will be automatically furnished without charge does not apply.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665

DJR

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